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ECONOMIC PLANTS POPULAR AT SMITH COLLEGE

By WILLIAM I. P. CAMPBELL

Now that the gardens at Smith College, Northampton, Mass., are bundled up for the winter, our visitors find it a pleasure to come in out of the freezing wind and snow flurries to visit the greenhouses, where the rich tropical foliage gladdens the eye as the warm, humid atmosphere heats the epidermis of the visitor. The economic plants are of special interest at this time owing to their scarcity in the markets. This condition has really brought home to many people the important part that plants play in the modern world.

The most unusual fruit among this group is probably the Carambola, or *Averrhoa carambola*. This plant, a member of the Wood-Sorrel family, *Oxalidaceae*, has golden yellow fruit about the size of a duck's egg but quite prominently ribbed or angled, making it star-shaped in cross-section. The fruit which is juicy and a bit tart, can be eaten fresh as a dessert or in salads; the Chinese use the flowers in preserves. The Carambola is a native of Malaya, China and India, and has been planted in Southern Florida.

The Vanilla is of interest in that it is seldom seen in fruit indoors, perhaps owing to the fact that it has to be hand pollinated. *Vanilla plantifolia*, or *fragrans* as it has come

to be known, is a fleshy-stemmed, simple-leaved, climbing epiphyte of the orchid family. The fruit is green, slender and bean-like, from six to ten inches long, and one-half inch in diameter, borne on short axillary racemes. It turns yellow and then brown, splitting open longitudinally when ripe, filling the house with a most delightful fragrance. The exceedingly fine, black seeds, which are fastened to the walls of this pod by a mucous substance, germinate very poorly and the plant is more easily propagated by cuttings. These seeds are the source of true vanilla and their importance was recognized by the Aztec Indians long before the Spaniards came to America and, since it was introduced to the gourmets of the world, has increased in importance to the point where, in recent years, synthetic substitutes have been produced. Vanilla, or Vainilla as the Spaniards called it, is now grown commercially chiefly in the East Indies.

The Ceriman, *Monstera deliciosa*, although it is grown chiefly for its ornamental foliage, produces an exceedingly sweet, edible fruit, (too sweet for most palates), flavored like a combination of pineapple and banana. A member of the Aroid family and a close relative of the Calla Lily, this





PAPAYA FRUITS CLUSTERED IN AXIL
OF LEAVES, HIGH IN PLANT

strong-growing vine, once known as *Philodendron pertusum*, produces large cone-like fruits and flowers and masses of long aerial roots, adding to the jungle-like appearance of the house. The leaves, about two feet in diameter, are borne on long petioles and are perforated resembling, the students say, a tractor seat.

The Papaya, *Carica papaya*, which is related to the Passion Flower and the melons, is an important tree in Central and Tropical America and is grown extensively in Florida. The fruit is very similar to the melon in structure, being globose, with a central cavity and thick, yellowish flesh and is used in much the same manner, being popular as a breakfast fruit or dessert. Both the fruit and the large, seven-lobed leaves, which are borne on long, hollow petioles, produce a milky juice. This juice contains an enzyme called papain, which has the unique property of making tough meat tender, (restaurant owners please note) and both the leaves and the fruit are so used in the tropics. The Papaya, or Pawpaw, is usually dioeci-

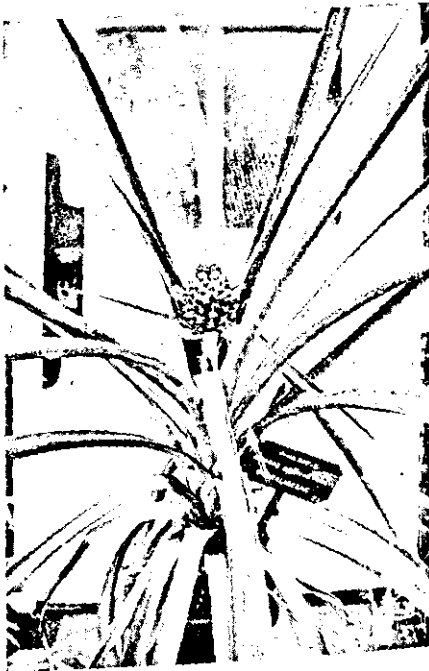
ous (the staminate and pistillate flowers borne on separate plants), the staminate being long-stalked, while the pistillate are almost sessile, producing the fruits among the leaves, high in the plant.

The Coffee, *Coffea arabica*, is a shrub with rich, glossy leaves, reminding one of the Gardenia foliage, which plant is a relative of the coffee, both being members of the Madder family, *Rubiaceae*. The fragrant, snow-white, star-shaped flowers are carried in quantity in the axils of the opposite leaves and the sight of a well-fruited plant, with its bright red berries against the background of glossy green, is a thing of beauty. The berries are two-seeded, which accounts for the one flat side on the coffee bean, and germinate readily when fresh. The coffee plant is probably from Abyssinia originally, although it became famous in Arabia whence the Arabs discovered its beverage qualities. It is now grown commercially mainly in Brazil and Africa.

Cacao, or the Chocolate-nut tree, *Theobroma cacao*, is another economic plant which originated in the New World, Theobroma, which means "food of the gods" was according to Mexican mythology, "conveyed to man as a special blessing by the God of the Air." Both Columbus and Cortez, whose arrival was toasted in a chocolate beverage by Montezuma, carried a few beans home to Spain and, by the seventeenth century, chocolate had become a fashionable drink on the continent. The plant is indigenous to the forests of the Amazon and the Orinoco rivers and was undoubtedly carried by wandering tribes to Central America from whence it became known. It is a sturdy evergreen tree which carries small flowers and large fruits in various stages of development on the bark of the trunk and stronger branches, giving it an odd appearance. Although the flowers are perfect they require hand pollination in the greenhouse, which necessitates considerable dexterity, owing to the complicated mechanism of its structure. The fruit is brown, later turning golden yellow, woody and



THE EDIBLE BANANA, A VARIETY OF *MUSA SAPIENTUM*, IN FLOWER AND FRUIT



PINEAPPLE PLANT IN FLOWER



ORYZA SATIVA, THE RICE OF COMMERCE, IN THE CENTER; *CYPERUS PAPYRUS* IN LEFT FOREGROUND

fully six inches long, containing the seeds that are the source of all the cocoa and chocolate of commerce.

The edible Banana, a variety of *Musa sapientum* which everyone knows, is always interesting and shows both the fruit and the large purplish inflorescence. The unfolding of each bract, showing the half-circle of pistillate flowers which later develops into the typical "hand" of bananas is a revelation to anyone seeing it for the first time.

The related Manila Hemp, *Musa textilis*, with its purer pink inflorescence attracts interest through, first of all being a banana and secondly the great economic importance of its fibres in rope making.

Some of the other important fibre-producing plants growing in our greenhouses here at Smith College are Sisal Hemp, *Agave sibilana*; Ramie, *Boehmeria nivea*; Jute, *Corchorus capsularis*; Flax, *Linum usitatissimum* and New Zealand Flax, *Phormium Tenax*.

The Rubber Plant, *Hevea brasiliensis*, has, since the Japanese captured the Dutch East Indies, become one of the plants most asked for and, although it has no attractive flower or fruit its great economic importance creates much interest. As the specific name indicates it is a native of Brazil and has leaflets in threes, which remind one of a three-fingered horsechestnut in shape.

Another plant that attracts attention while in fruit is the Pineapple, *Ananas sativus*. This native of Tropical America was once grown commercially, in quantity, in Florida until disease and cold winters, coupled with its more successful cultivation elsewhere

greatly reduced its production in the United States. Hawaii is now the largest pineapple producing area.

A great attraction for our Boy Scout and school-child visitors is the fish pool in the tropical stove house, where Rice, Sugarcane, and Egyptian Papyrus remind them of the East and their relatives fighting with the armed forces. *Cyperus papyrus*, aside from its paper-making history among the ancient Egyptians is also supposed to be the same plant that grew along the edges of the river Nile and gained added fame as the "bull-rushes" of the Bible story of the finding of Moses.

STRYBING ARBORETUM AT GOLDEN GATE PARK

The plant collections at Golden Gate Park in San Francisco will ultimately be better cared for and more advantageously displayed according to a report by Eric Walther. Within the past few years, he states, a definitely planned Arboretum and Botanical Garden have been assured.

The plans of the Park Commissioners were given definite form by the will of the late Mrs. Helene Strybing which provides funds for the establishment of "an Arboretum and Botanical Gardens, to be located in the vicinity of the California Academy of Sciences, in which California wildflowers, and plants used for medical purposes shall be given special consideration; all plants to be properly labelled, etc."

The area selected for this purpose is located just towards the Southwest of the well known Japanese Tea Garden, where ultimately about forty acres are to be developed.

Work was begun about five years ago, with the coöperation of the local offices of the Federal Works Project Administration. The area has been cleared of superfluous or over-aged trees, the soil has been improved by grading, fertilization, deep double-trenching, installation of a water supply,



VIEW AT ENTRANCE INTO STRYBING ARBORETUM

paths, stepping stones and drains; and the erection of a protective fence and gates. Subsequently well over 2,000 different kinds